

Installation and Operation

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Qualified Persons

 **WARNING**

The equipment covered by this publication must be installed, operated, and maintained by qualified persons who are knowledgeable in the installation, operation, and maintenance of overhead electric power distribution equipment along with the associated hazards. A qualified person is one who is trained and competent in:

- The skills and techniques necessary to distinguish exposed live parts from nonlive parts of electrical equipment
- The skills and techniques necessary to determine the proper approach distances corresponding to the voltages to which the qualified person will be exposed
- The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment

These instructions are intended only for such qualified persons. They are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

NOTICE

These interrupter switches are not intended for breaking fault currents. They have a one-time duty-cycle fault-closing **rating**, when operated by an S&C Switch Operator—Type AS-1A, or by an S&C 6801M Automatic Switch Operator. They have a one-time duty-cycle fault-closing **capability**—when manually operated vigorously through their full travel without hesitation at any point. The fault-closing rating for Type AS-1A Switch Operator enabled switches is listed on the nameplate.

Read this
Instruction Sheet

NOTICE

Read this instruction sheet thoroughly and carefully before installing or operating your S&C Alduti-Rupter Switch. Familiarize yourself with the Safety Information and Safety Precautions on page 4 through 6.

Retain this
Instruction Sheet

This instruction sheet is a permanent part of your S&C Alduti-Rupter Switch. Designate a location where you can easily retrieve and refer to this publication. The latest version is available online in PDF format at sandc.com/support/product-literature.asp

Proper Application

 **WARNING**

The equipment in this publication must be selected for a specific application. The application must be within the ratings furnished for the equipment. Refer to the S&C Specification Bulletin 761-31 for complete application information.

These interrupter switches are not intended for breaking fault currents.

Operating Considerations

Circuit making and breaking is involved in the normal operation of these interrupter switches, and partial or precautionary opening or closing of the switch should not be attempted. If the switch is covered in ice or snow, do not “chop” the switch between the open and closed position to dislodge the ice.

To operate the switch, swing the handle through its full stroke without hesitation. Do not assume that the operating handle position indicates the open or closed position of the interrupter switch blades. After opening or closing the switch, always make a visual check of the blade position to determine that the switch blades are in the intended position. Tag or padlock the operating handle in accordance with standard system operating practices. In all cases, make sure the operating handle is locked before “walking away” from the switch.

Warranty

The warranty and/or obligations described in S&C's standard conditions of sale, as set forth in Price Sheet 150, plus any special warranty provisions, as set forth in the applicable product-line specification bulletin, are exclusive. The remedies provided in the former for breach of these warranties shall constitute immediate purchaser's or end user's exclusive remedy and a fulfillment of all seller's liability. In no event shall seller's liability to the immediate purchaser or end user exceed the price of the specific product which gives rise to the immediate purchaser's or end user's claim. All other warranties, whether express or implied or arising by operation of law, course of dealing, usage of trade or otherwise, are excluded. The only warranties are those stated in Price Sheet 150, and THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY EXPRESS WARRANTY OR OTHER OBLIGATION PROVIDED IN PRICE SHEET 150 IS GRANTED ONLY TO THE IMMEDIATE PURCHASER AND END USER, AS DEFINED THEREIN. OTHER THAN AN END USER, NO REMOTE PURCHASER MAY RELY ON ANY AFFIRMATION OF FACT OR PROMISE THAT RELATES TO THE GOODS DESCRIBED HEREIN, ANY DESCRIPTION THAT RELATES TO THE GOODS, OR ANY REMEDIAL PROMISE INCLUDED IN PRICE SHEET 150.

Warranty Qualifications

The standard warranty is applicable to the S&C Alduti-Rupter Switch detailed in this instruction sheet except when it is power-operated using a switch operator of other than S&C manufacture.

Safety Information

Understanding
Safety-Alert
Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to the Alduti-Rupter Switch. Familiarize yourself with these types of messages and the importance of the various signal words:

 DANGER "DANGER" identifies the most serious and immediate hazards that <i>will likely</i> result in serious personal injury or death if instructions, including recommended precautions, are not followed.
 WARNING "WARNING" identifies hazards or unsafe practices that <i>can</i> result in serious personal injury or death if instructions, including recommended precautions, are not followed.
 CAUTION "CAUTION" identifies hazards or unsafe practices that <i>can</i> result in minor personal injury damage if instructions, including recommended precautions, are not followed.
NOTICE "NOTICE" identifies important procedures or requirements that <i>can</i> result in product or property damage if instructions are not followed.

Following
Safety Instructions

If you do not understand any portion of this instruction sheet and need assistance, contact your nearest S&C Sales Office or S&C Authorized Distributor. Their telephone numbers are listed on S&C's website www.sandc.com or call S&C Headquarters at (773) 338-1000; in Canada, call S&C Electric Canada Ltd. at (416) 249-9171.

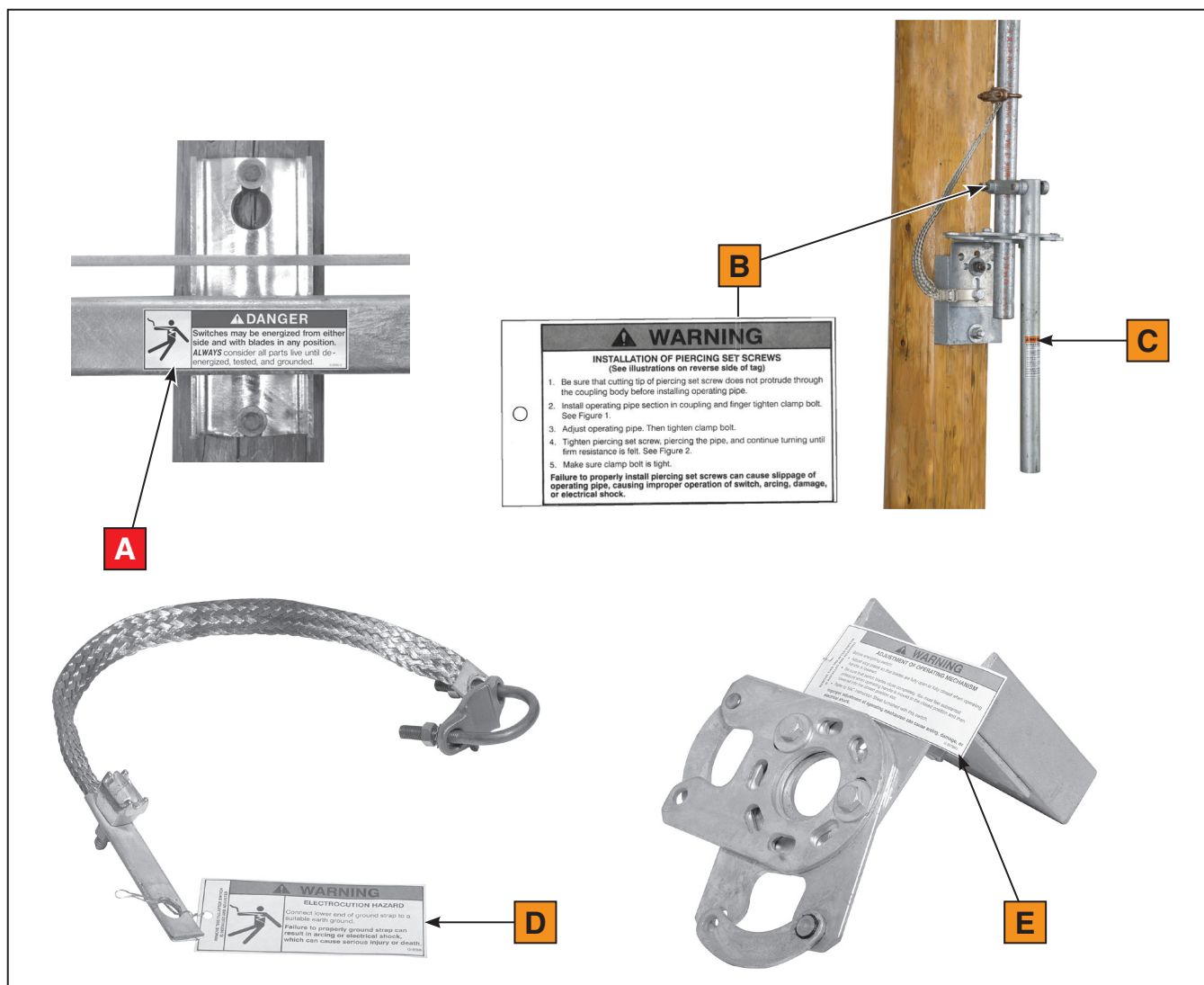
NOTICE Thoroughly and carefully read this instruction sheet before operating your S&C Alduti-Rupter Switch.	
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Replacement
Instructions and
Labels

If you need additional copies of this instruction sheet, contact your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

It is important that any missing, damaged, or faded labels on the equipment are replaced immediately. Replacement labels are available by contacting your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

Location of Safety Labels and Tags



Reorder Information for Safety Labels

Location	Safety Alert Message	Description	Number
A	⚠ DANGER	Electrocution Hazard	G-6580-2
B	⚠ WARNING	Piercing Set Screws	G-10200▲
C	⚠ WARNING	Handle Operation	G-4400R5
D	⚠ WARNING	Electrocution Hazard—Grounding Strap	G-6596▲
E	⚠ WARNING	Adjustment of Operating Mechanism	G-3578R1▲

▲ This part is a tag that is to be removed and discarded after the switch is installed and adjusted.

DANGER



Alduti-Rupter Switches operate at high voltage. Failure to observe the precautions below will result in serious personal injury or death.

Some of these precautions may differ from company operating procedures and rules. Where a discrepancy exists, users should follow their company's operating procedures and rules.

- 1. QUALIFIED PERSONS.** Access to switches and controls must be restricted only to qualified persons. See "Qualified Persons" on page 2.
- 2. SAFETY PROCEDURES.** Always follow safe operating procedures and rules.
- 3. PERSONAL PROTECTIVE EQUIPMENT.** Always use suitable protective equipment such as rubber gloves, rubber mats, hard hats, safety glasses, and flash clothing in accordance with safe operating procedures and rules.
- 4. SAFETY LABELS AND TAGS.** Do not remove or obscure any of the "DANGER," "WARNING," "CAUTION," or "NOTICE" labels and tags. Remove tags **ONLY** if instructed to do so.
- 5. ENERGIZED COMPONENTS.** Always consider all parts live until de-energized, tested, and grounded.
- 6. INTERRUPTER SWITCH POSITION.** Always confirm the open/close position of interrupter switches by visually observing the position of the blades. Switches may be energized from either side and with the blades in any position.
- 7. MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
- 8. OPERATION.** Circuit making and breaking is involved in the normal operation of this interrupter switch and, as a result, "partway" opening or closing is undesirable. To operate, swing the operating handle through its full travel vigorously and without hesitation. See "Operation" on page 23.

Inspection

Examine the shipment for external evidence of damage as soon after receipt as possible, preferably before removal from the carrier's conveyance. Check the bill of lading to make sure the shipping skids, crates, and containers listed thereon are present. If there is visible loss and/or damage:

1. Notify the delivering carrier immediately.
2. Ask for a carrier inspection.
3. Note the condition of shipment on all copies of the delivery receipt.
4. File a claim with the carrier.

If concealed damage is discovered:

1. Notify the delivering carrier within 15 days of receipt of shipment
2. Ask for a carrier inspection.
3. File a claim with the carrier.

Also notify S&C Electric Company in all instances of loss and/or damage.

Packing

Study the erection drawing carefully and check the bill of materials to be sure all of the parts are at hand. When a standard mounting arrangement is specified, the shipment will include:

1. A three-pole interrupter switch, complete with interphase drive, factory assembled on a single base (All switch adjustments, including that of the interphase drive, are made at the factory to ensure proper operation and simultaneity of opening and closing.)
2. Three vertical operating-pipe sections
3. Miscellaneous mounting hardware (less through bolts) for securing the Alduti-Rupter switch to the mounting structure
4. The appropriate set of operating mechanism components for the vertical operating pipe; e.g. handle, guide bearings and couplings—each tagged and keyed to the bill of material for ready identification
5. If a standard minor modification of a standard mounting arrangement is specified, the appropriate parts, as identified in the bill of materials under suffix: “-S1,” “-S2,” “-S6,” “-S8,” and “-S16.”
 - S1 Tubular fiberglass insulating section in vertical operating shaft
 - S2 Cypoxy™ Insulator unit in the vertical operating shaft
 - S6 Key interlock – single lock for a “locked-open” application
 - S8 Provision for power operation of pole-mounted switches by S&C Switch Operator – Type AS-1A
 - S16 Provision for power operation of pole-mounted switches by S&C 6801M Automatic Switch Operator
6. **Erection Drawing:** A detailed erection drawing (ED) for the Alduti-Rupter Switch will be found in a water-resistant envelope shipped with the switch. If a standard mounting arrangement is to be used, this erection drawing is a printed sheet. This same sheet is also furnished when a standard minor modification of a standard mounting arrangement is used. A copy of RD-10001 (Modifications to Standard Bill of Materials for Rotating-Type Operating Mechanisms with S/B & V/B Integer-Style Switches) is included. A custom erection drawing will be provided for special mounting arrangements. Contact your nearest S&C Sales Office for details.

7. **Power Operation:** If suffix “-S8,” or “-S9” is specified, S&C Instruction Sheet 769-500 and 769-501, “S&C Switch Operators – Type AS-1A,” are included with the switch operator shipment. Instruction Sheets 769-500 and 769-501 cover installation, operation, and adjustment of the switch operator and should be used in conjunction with this instruction sheet where applicable. If suffix “-S16” is specified, associated S&C Instruction Sheets for the 6801M Automatic Switch Operator are included with the switch operator shipment and should be used in conjunction with this instruction sheet where applicable. Not all mounting arrangements are suitable for power operation; consult your nearest S&C Sales Office for details.
8. **Fused Interrupter Switch.** Although the interrupter switch photos shown in this instruction sheet are not fused, the installation procedure is identical for a fused interrupter switch.

Handling

The crate the switch is packed in is designed to be moved and lifted using a lift truck. Raised slots in the bottom of the crate are provided for a lift truck’s forks.

NOTICE

To minimize time-consuming final adjustments after installation, make sure the switch poles are in their fully **Closed** position and their toggle mechanisms are against their closed stops during installation of the vertical operating-pipe sections. Switch blades can be tied to their jaw-contact members, and the toggle mechanisms can be tied to their stops.

WARNING

DO NOT lift the switch by rigging on the “live parts” or subject these parts to undue stress from slings or fall lines.

Lifting the switch by the live parts will damage the switch. Rough handling may cause damage to the blades, contacts, and/or interrupters.

Failure to lift the switch properly can result in switch damage, causing improper operation, arcing, or electrical shock.

Operating Pipe Preparation

Operating pipes can be cut to length (if not precut at the factory) before transporting the switch to the job site. Cutting dimensions are shown on the erection drawing.

Mounting to a Wood Pole

Step 1

Drill two $\frac{1}{16}$ -inch diameter holes in the utility pole at the desired height for mounting the switch. See the erection drawing. See Figure 1.

NOTICE

When mounting to a wood utility pole, a Belleville-type washer must be used between the square washer and the nut to maintain fastener tightness in the event of wood shrinkage. See Figure 2.

Step 2

Insert a $\frac{5}{8}$ -inch diameter through-bolt (not furnished) into each hole as shown in Figure 3.

Loosely attach a square washer, Belleville washer (when mounting to a wood utility pole), and nut on each bolt. See Figure 3.

Uncrating the Switch

Step 3

Remove the switch from its crate. Protect the bearings from contamination by dirt, mud, oil, etc. If necessary, use blocks to keep the bearings clear of the ground.

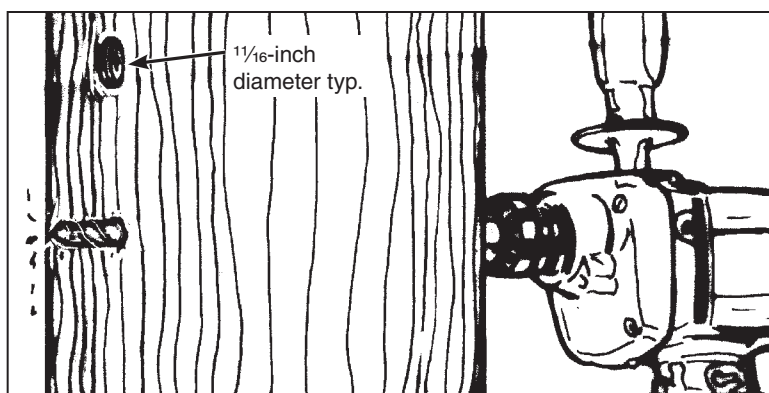


Figure 1. Drill the holes for the switch-mounting bracket.

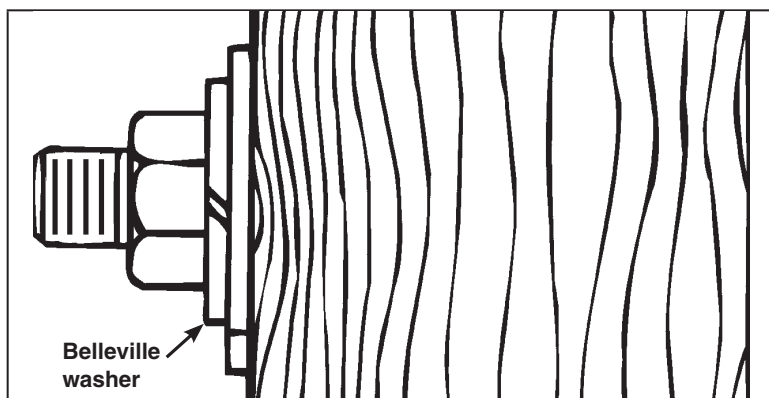


Figure 2. Install a Belleville washer.

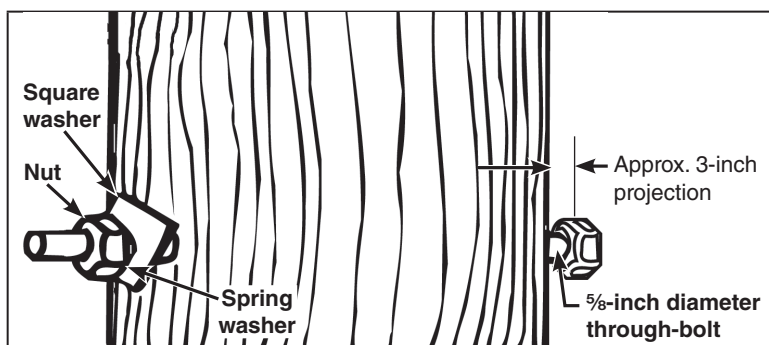


Figure 3. Install the through-bolts.

Installation

Installing the Switch

Step 4

⚠ CAUTION

DO NOT lift the switch by rigging on the “live parts” or subject these parts to undue stress from slings or fall lines.

Lifting the switch by the live parts will damage the switch. Rough handling may cause damage to the blades, contacts, and/or interrupters.

Failure to lift the switch properly can result in switch damage, causing improper operation, arcing, or electrical shock.

To minimize time-consuming final adjustments, make sure the switch is fully closed. Tie the switch blades to their stationary main contact assemblies. See Figure 4.

Attach the lifting slings to the two lifting eyebolts provided in the upper end of the switch base, and hoist the switch assembly. See Figure 5.

Step 5

Guide the switch so the through-bolts projecting from the utility pole enter into the keyhole slot and open slotted hole of the mounting brackets.

Step 6

Slowly lower the switch until it bears on the through-bolts. Fully tighten the bolts. See Figure 5. Afterward, remove the lifting slings.

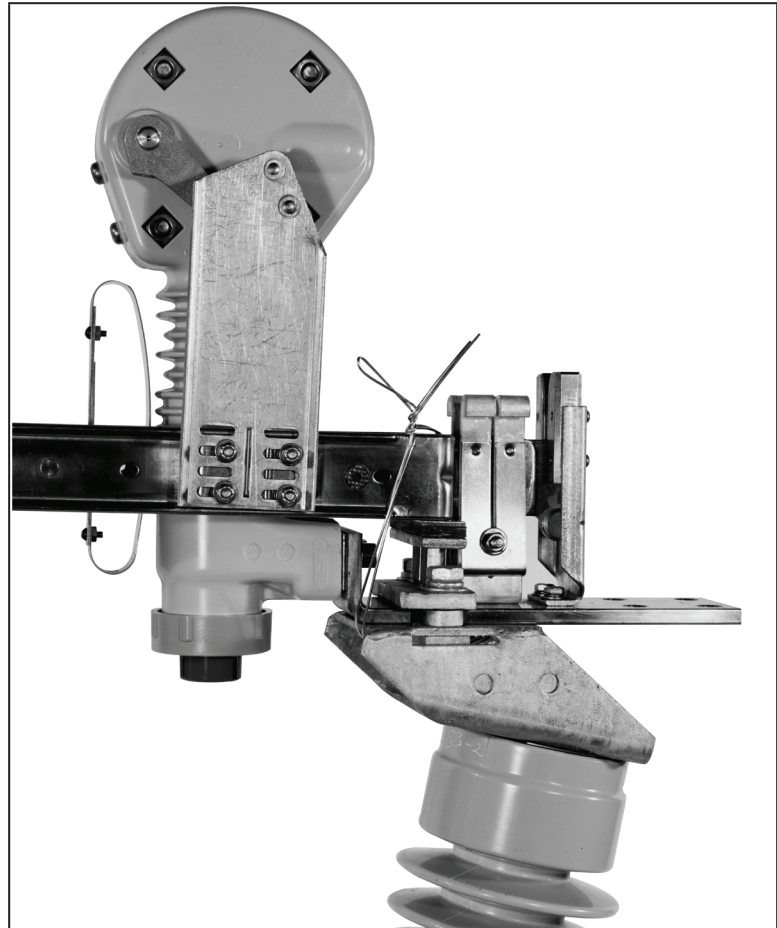


Figure 4. Tie the switch blade to the stationary main contact.

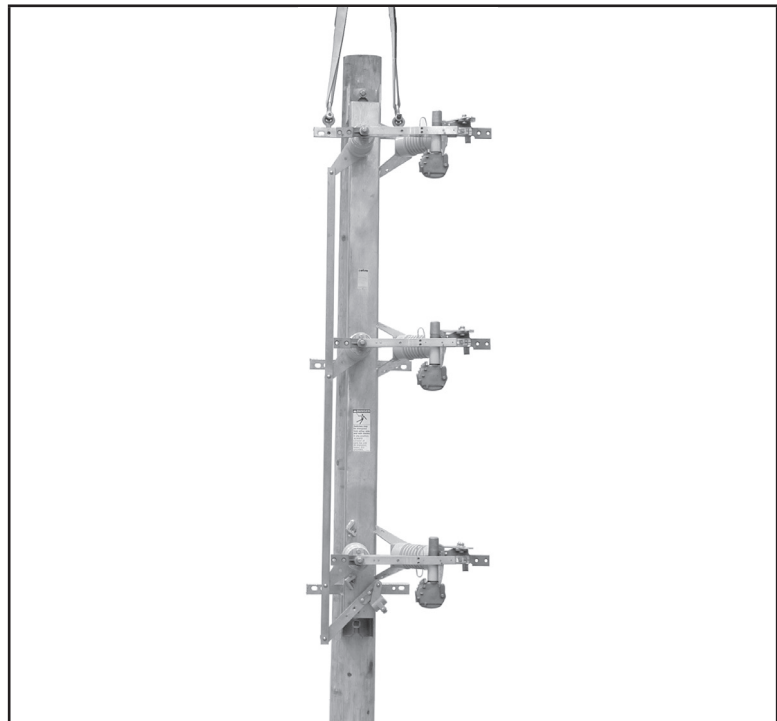


Figure 5. Hoisting the switch into position (side-break switch shown for illustration purposes).

Installing Pipe Couplings with Piercing Set Screws

Step 7

The vertical operating pipe and rotating operating handle use piercing set screws to couple to the operating pipe. See Figure 6. Before installing the interphase pipe sections, check that the cutting tip of each piercing set screw does not protrude into the body of the coupling.

WARNING

Failure to properly install pipe couplings with piercing set screws can cause the operating pipe to slip, resulting in improper operation of the switch, arcing, equipment damage, or electrical shock.

To properly install the piercing set screws:

- (a) Back the piercing set screw out of the coupling so the tip does not protrude into the body of the coupling.
- (b) Insert the operating pipe section into the coupling and finger-tighten the clamp bolt(s).
- (c) Adjust the operating pipe to the correct length. Afterward, tighten the clamp bolt(s) to final tightness.
- (d) Tighten the piercing set screw, piercing the pipe. Continue turning until a firm resistance is felt.
- (e) Check that the clamp bolt(s) are tight.

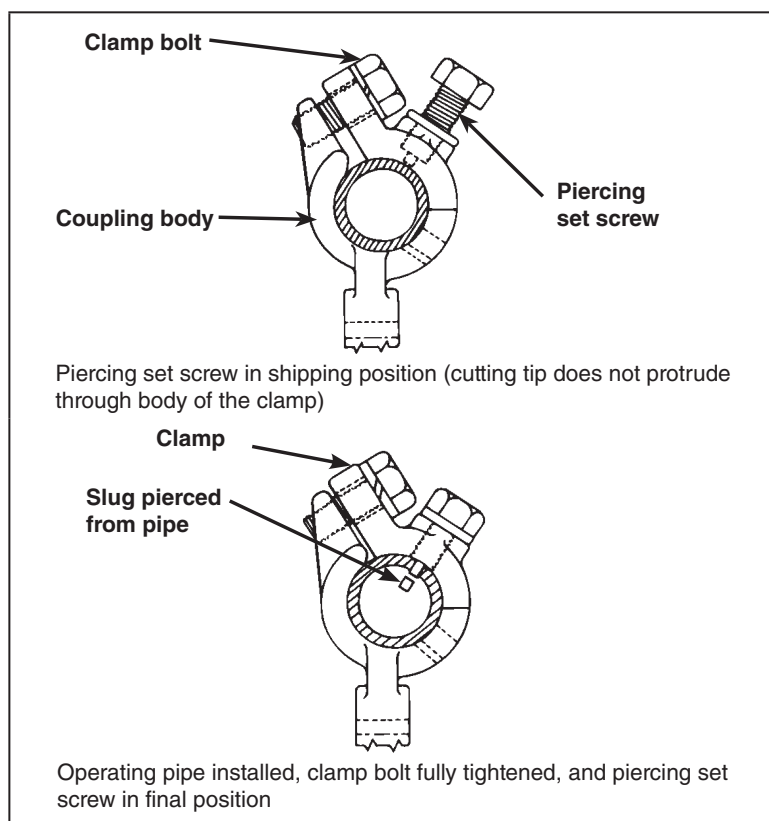


Figure 6. Install the pipe couplings.

Installing the Vertical Operating Pipe

Before Starting

S&C recommends making each coupling connection as work progresses from the top down. Start with the universal coupling connecting the switch to the upper section of vertical operating pipe. Continue with the coupling between the upper section of vertical operating pipe and the first lower section, move down to the last section of pipe, and end with the rotating operating handle.

This makes it easier to adjust for variations in the surface and height of the wood pole or mounting structure as work progresses.

Step 8

Insert the uppermost section of the vertical operating pipe into the universal coupling attached to the interphase shaft of the switch. See Figure 7.

Torque the clamp bolts to final tightness. Afterward, tighten the piercing set screw, piercing the pipe. Continue turning until a firm resistance is felt.

Step 9

Attach a pipe-to-pipe type universal coupling to the lower end of the uppermost section of vertical operating pipe. See Figure 8. Back the piercing set screw out of the body of the pipe coupling before tightening the coupling clamp bolts.

Torque the clamp bolts to final tightness. Afterward, tighten the piercing set screw, piercing the pipe. Continue turning until a firm resistance is felt.

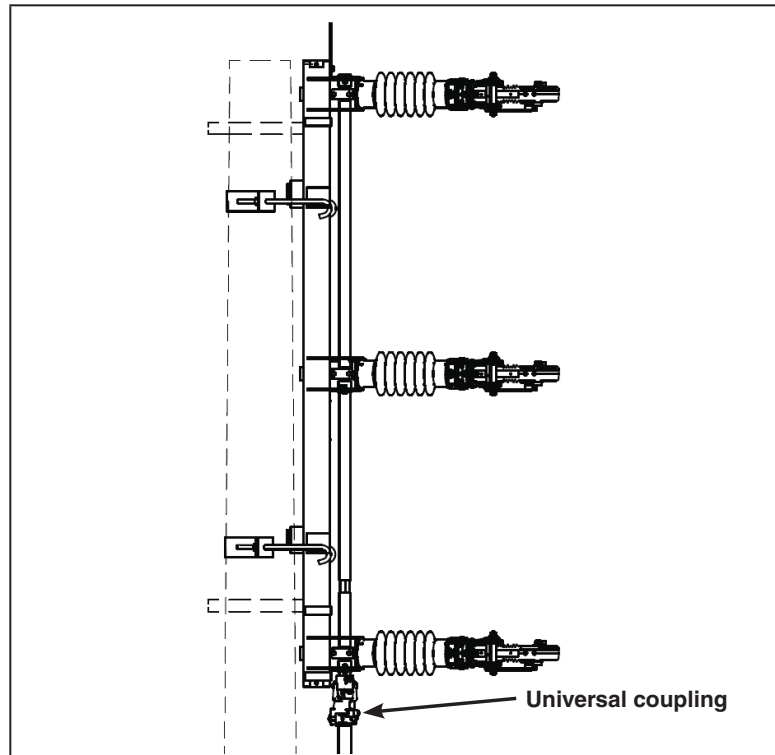


Figure 7. Connect the upper section of operating pipe to the universal coupling attached to the interphase operating shaft.

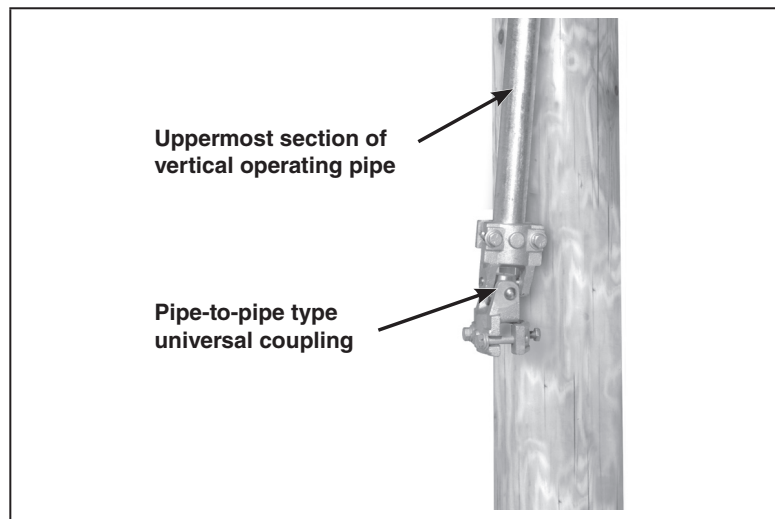


Figure 8. Attach the pipe-to-pipe type universal coupling to the lower end of the vertical operating pipe.

Step 10

Position and install the guide-bearing assembly on the pole or structure in accordance with the dimension shown on the erection drawing. See Figure 9.

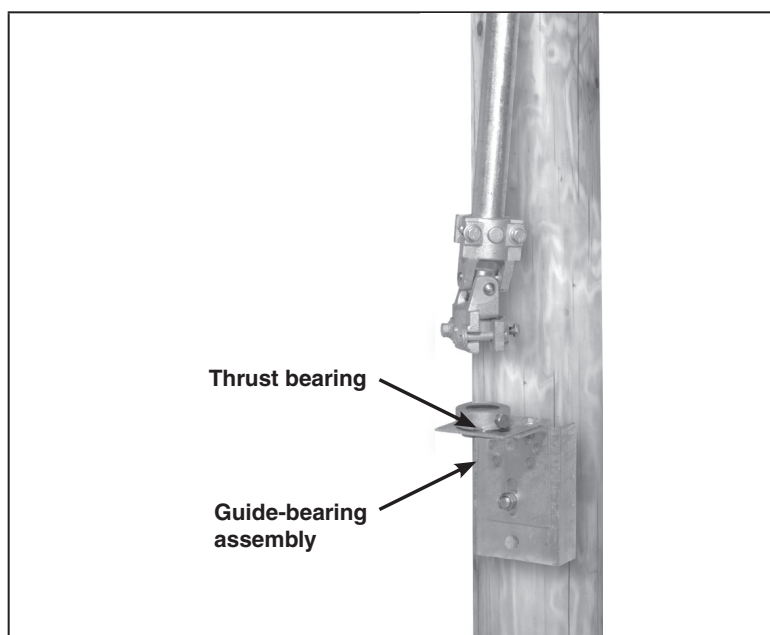


Figure 9. Install the guide-bearing assembly.

Step 11

Pass the next section of vertical operating pipe up through the guide-bearing assembly and then through the thrust bearing. The thrust bearing will rest on the guide bearing and support the operating pipe.

Insert the pipe section into the universal coupling previously attached to the lower end of the uppermost operating-pipe section. Do not tighten the clamp bolts at this time.

While holding the pipe in this position—and with the thrust bearing resting on the guide bearing—tighten the piercing set screw in the thrust bearing, piercing the pipe. Continue turning until a firm resistance is felt. See Figure 10.

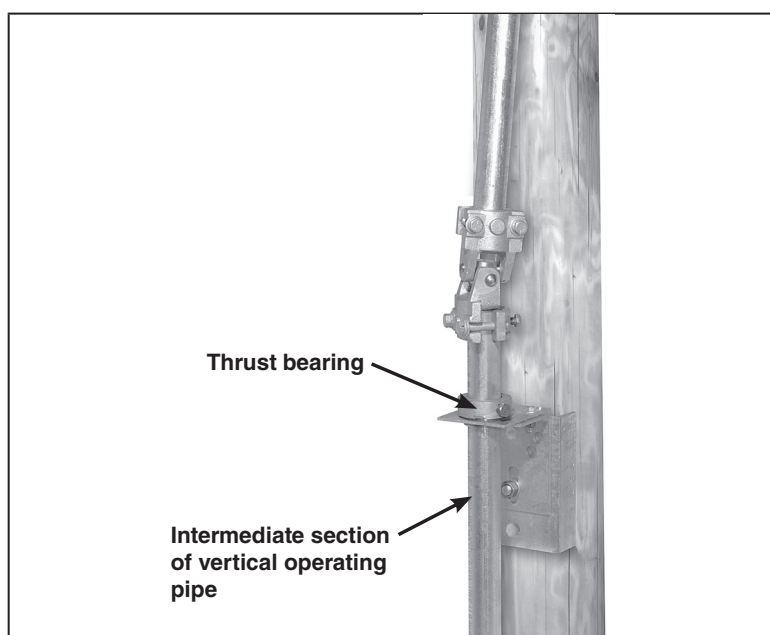


Figure 10. Install the intermediate section of the vertical operating pipe.

Step 12

Install a guide-bearing assembly with each additional vertical operating-pipe section, positioned in accordance with the dimension shown on the erection drawing. See Figure 11. Thrust bearings are only necessary on the uppermost guide bearing. Use rigid couplings to join these additional pipe sections. Before installing the coupling, back the piercing set screws out of the coupling body so they do not protrude into the coupling.

Torque the clamp bolts to final tightness. Afterward, tighten the piercing set screws, piercing the pipe. Continue turning until a firm resistance is felt.

Step 13

At the universal coupling immediately above the thrust bearing—torque the clamp bolts to final tightness. Afterward, tighten the piercing set screw, piercing the pipe. Continue turning until a firm resistance is felt. ♦

♦ If the shipment includes an S&C Type AS-1A Switch Operator and has been specified with standard minor modification suffix “-S9” to the erection drawing number, refer instead to S&C Instruction Sheet 769-500, “S&C Switch Operators – Type AS-1A, Instructions for Installation.”

If the shipment includes an S&C 6801M Automatic Switch Operator and has been specified with standard minor modification “-S16” to the erection drawing number, refer instead to S&C Instruction Sheet 1045M-510.

Installing the Rotating Operating Handle

When a key interlock is used (standard minor modification suffix “-S6”), skip to Step 17 on page 16.

When a Type AS-1A Switch Operator is used (standard minor modification suffix “-S8” or “-S9”) refer instead to S&C Instruction Sheet 769-500 for installation instructions.

When an S&C 6801M Automatic Switch Operator is used (standard minor modification suffix “-S16”) refer instead to S&C Instruction Sheet 1045M-510 for installation instructions.

Step 14

Back the piercing set screws out of the handle yoke and slide the handle assembly up the pipe until it is in the location indicated on the erection drawing. There should be 6 to 8 inches of operating pipe below the operating handle assembly. See Figure 12.

Tighten the piercing set screws on the operating handle assembly enough to hold the handle in place, but DO NOT pierce the vertical operating pipe.

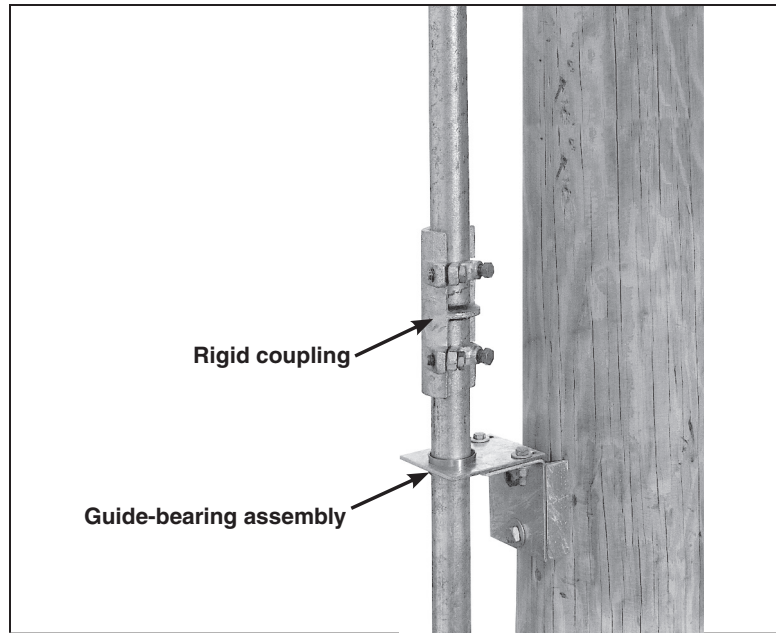


Figure 11. Install the rigid coupling and guide-bearing assembly.

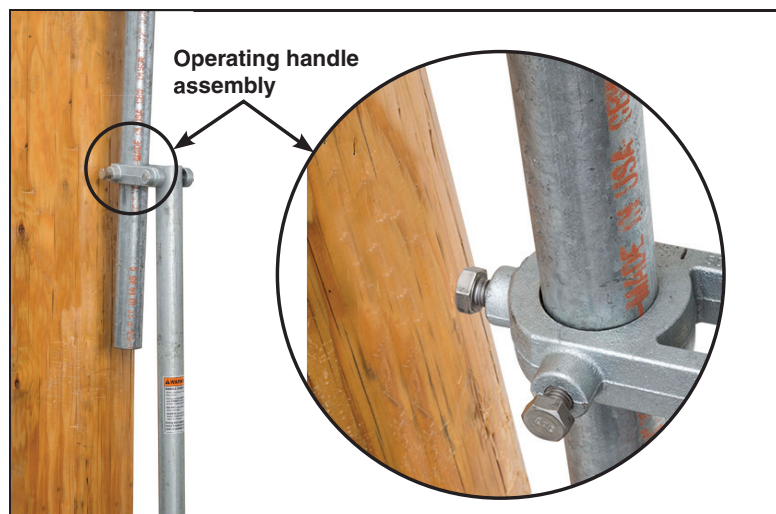


Figure 12. Slide the operating handle yoke up the handle assembly. Hand tighten the set screw, but do not pierce the pipe.

Step 15

Slide the foot bearing onto the lowest section of pipe at the position shown on the erection drawing. See Figure 13. Adjust the operating handle assembly until it is 2 to 3 inches above the foot-bearing assembly. Tighten the piercing set screws, piercing the pipe. Continue turning until a firm resistance is felt.

At the same time, use one of the mounting bolts to attach one end of the grounding strap (the end with the grounding connector attached) to the foot-bearing assembly. The grounding recommendations described in this document may differ from the standard operating and safety procedures of certain electric utility companies. Where a discrepancy exists, the operating procedures of the electric utility apply.

If necessary to compensate for the taper of the wood pole and to keep the vertical operating pipe aligned and plumb, shift the guide bearings toward or away from the pole. Alignment slots are provided for this purpose.

Step 16

Fasten the free end of the grounding strap to the lowest pipe section a few inches above the operating handle assembly (or key interlock) with the U-bolt connector provided for this purpose. See Figure 14. Afterward, connect the lower end of the strap to a suitable earth ground using the grounding connector provided at the end of the strap.

The grounding recommendations described in this document may differ from the standard operating and safety procedures of certain electric utility companies. Where a discrepancy exists, the operating procedures of the electric utility apply.

After installing the handle, skip to the “Checking Alignment and Adjusting the Stop Plates” section on page 18.

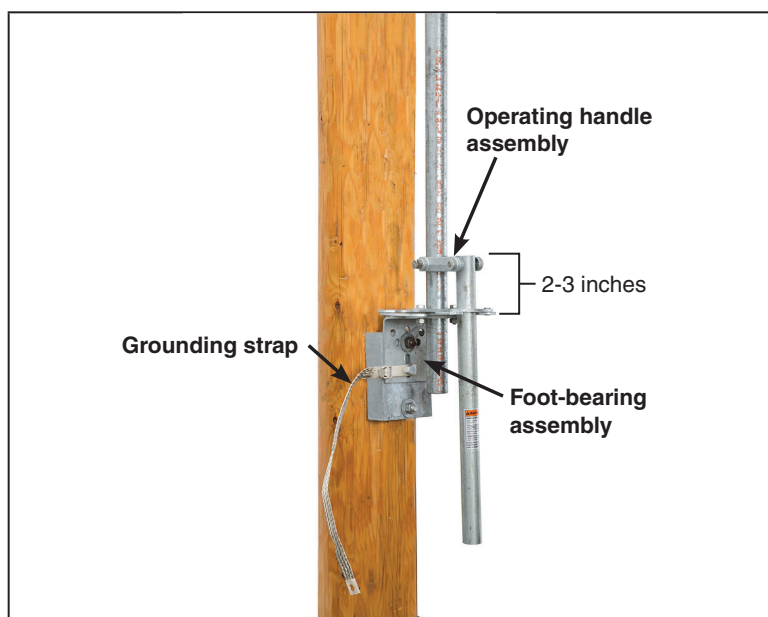


Figure 13. Install the foot-bearing assembly so the operating handle assembly is 2 to 3 inches above the foot-bearing assembly.

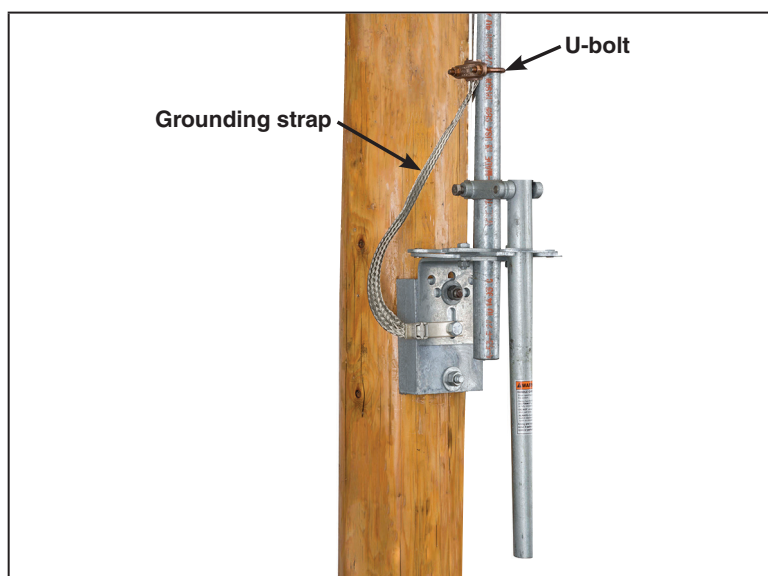


Figure 14. Install the grounding strap.

Installing the Operating Handle with Key Interlock

Step 17

The interlock group includes a Superior Type B6003-1 Mk II single- or multiple-key interlock (or equivalent) with $\frac{3}{8}$ -inch bolt projection and $\frac{3}{4}$ -inch bolt travel, locking disc, and interlock bracket. If “provision only” is specified, the interlock is not included.

Slide the interlock bracket, locking disc, operating handle assembly, and foot-bearing assembly onto the lowest vertical operating pipe section, with the locking disc and operating handle assembly between the interlock bracket and the foot-bearing assembly. See Figure 15.

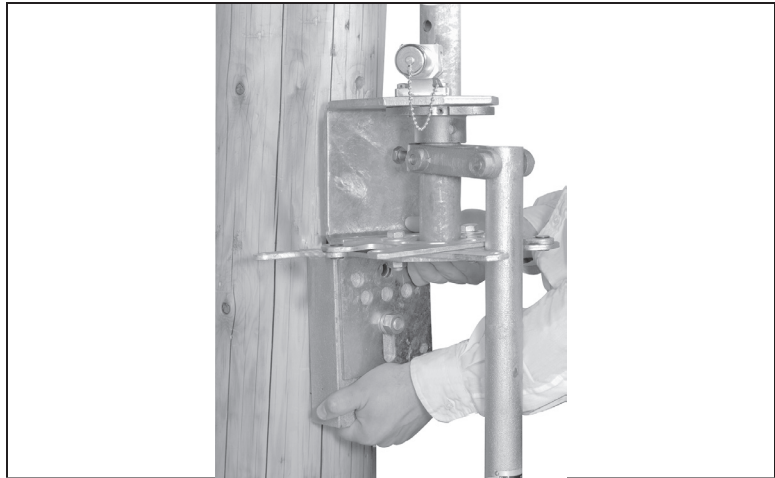


Figure 15. Position the interlock bracket, locking disc, operating handle assembly, and foot-bearing assembly onto the lowest vertical operating-pipe section.

Step 18

Bolt the foot-bearing assembly to the pole at the position shown on the erection drawing. Use one of the mounting bolts to attach one end of the grounding strap (the end with the grounding connector attached) to the foot-bearing assembly. See Figure 16. The grounding recommendations described in this document may differ from the standard operating and safety procedures of certain electric utility companies. Where a discrepancy exists, the operating procedures of the electric utility apply.



Figure 16. Attach the foot-bearing assembly.

Step 19

Fasten the operating-handle assembly to the lowest vertical operating-pipe section using the ½-inch diameter stainless-steel pin furnished. The pin should engage the through hole in the vertical operating pipe nearest the position shown on the erection drawing. Figure 17.

Tighten the piercing set screws on the operating handle assembly, piercing the pipe. Continue turning until a firm resistance is felt.

Attach the interlock bracket to the foot-bearing assembly using the ½-13 x 1-½-inch cap screws, spacers, and ½-inch lock washers furnished.

With the switch in the **Closed** position, use the interlock bolt to position the locking disc so the bolt enters the **Closed**-position slot in the disc (and will enter the **Open**-position slot when the switch is in the **Open** position).

Step 20

Hold the locking disc ⅜-inch below the interlock bracket and drill ⅞-inch diameter holes through the vertical operating-pipe section, using the holes in the locking disc collar as a guide. Attach the locking disc to the pipe using the ⅜-16 x 3-inch cap screw, lockwasher, and nut furnished. See Figure 18.

NOTICE

Key interlocks are intended for proper sequencing of switch operations; they are not intended to provide security. The operating-handle assembly includes a swing-away hasp for padlocking the switch in either the open or closed position.

Step 21

Block one of the two slots in the locking disc with the blocking screw provided. (The slot to be blocked depends on whether a locked-open or locked-closed arrangement is required.) See Figure 19.

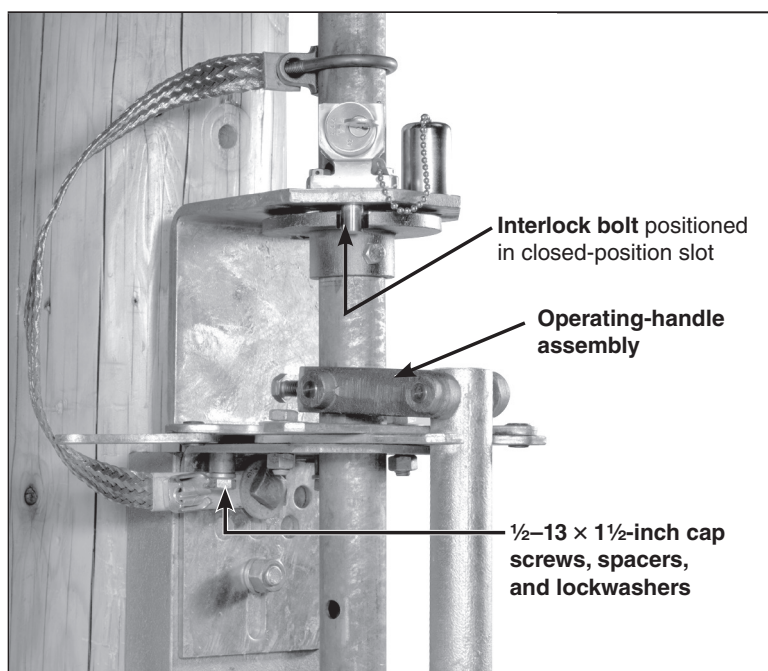


Figure 17. Fasten the operating-handle assembly.

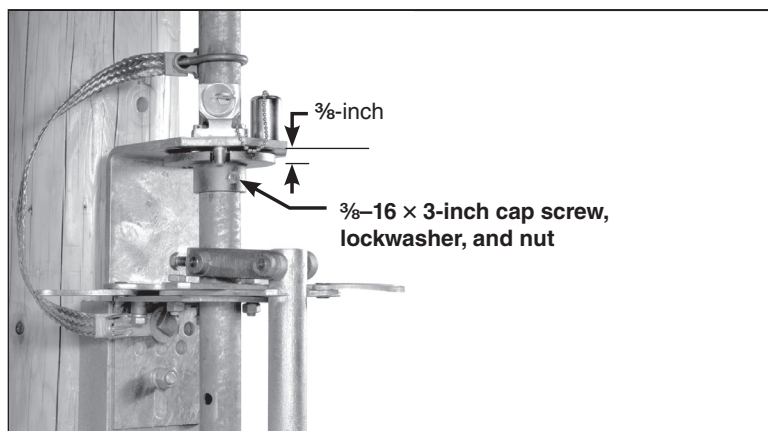


Figure 18. Attach the locking disc.

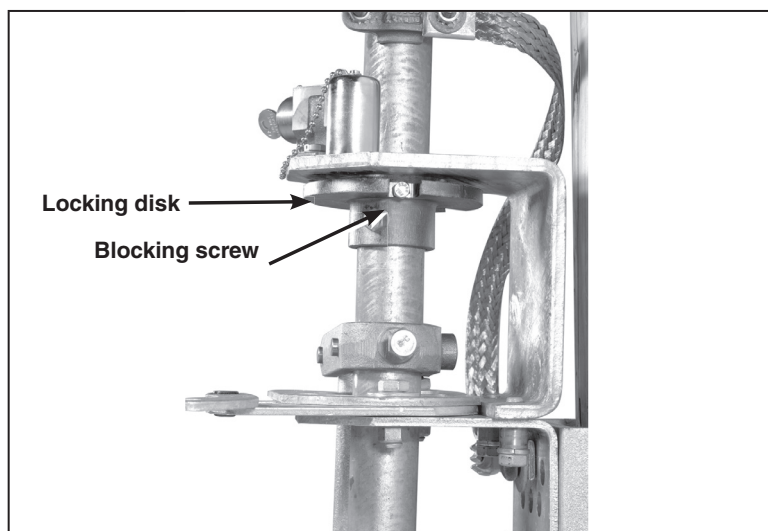


Figure 19. Blocking slot in the interlock disc.

Checking Alignment and Adjusting the Stop Plates

Step 22

NOTICE

The switch should be opened and closed slowly only when checking for alignment and complete closure.

When opening or closing the switch in service, do not slow down or stop part way. Arcing will occur if the switch is partially open or partially closed.

Remove the ties holding the switch blades to their stationary main contact assemblies.

Open and close the switch slowly to ensure no operational difficulties are encountered caused by undetected damage in shipping.

Step 23

The stop plate holes are slotted to allow room for adjustment. Loosen the bolts that secure the adjustable stop plates to the foot-bearing support plate. See Figure 20. Place the switch in the fully **Open** position, and adjust the **Open**-position stop-plate so when the handle is lowered it fits into the **Open**-position slot. Mark the location of the **Open**-position stop plate on the support plate.

Step 24

NOTICE

DO NOT skip this important step! Loose or improperly installed vertical operating pipe is the primary cause of incomplete blade contact. Over time this condition can cause heating and eventually arcing of the blade contacts.

The most common cause of contact overheating and damage is not putting enough “wind up” torque in the vertical operating pipe when the switch is in the **Closed** position. Wind up is the torque left in the pipe after the handle is secured in the closed stop plate. This windup prevents the pipe from vibrating in high winds and creates strong positive blade-to-contact pressure, ensuring the switch is securely held in the **Closed** position.

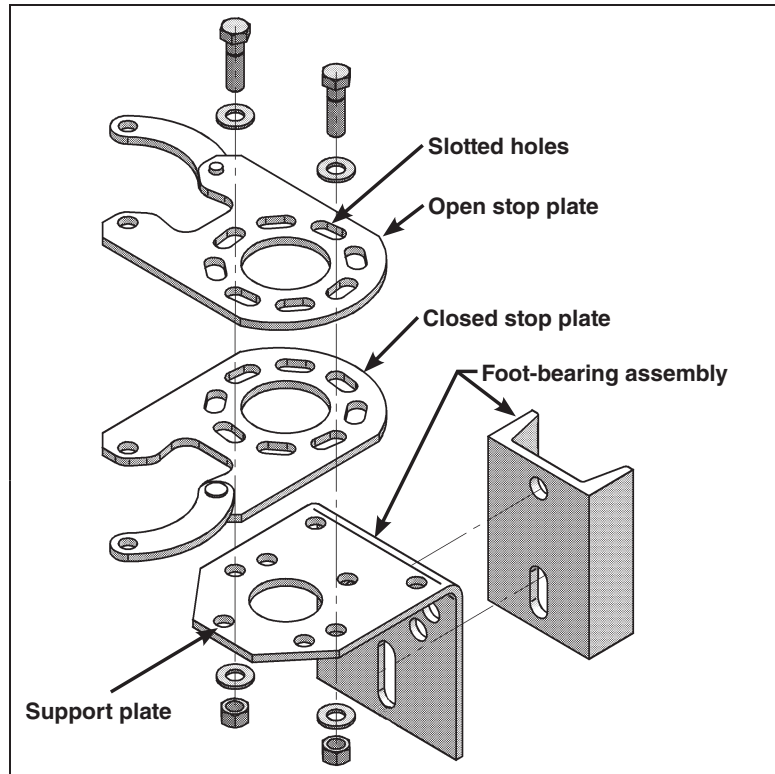


Figure 20. Exploded view of stop plates and the foot-bearing assembly.

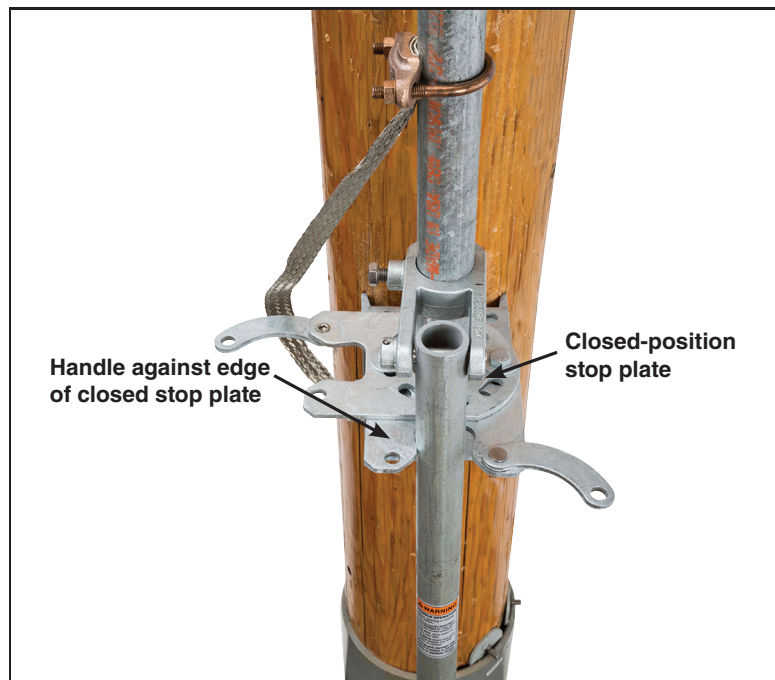


Figure 21. Adjust the Closed position stop plate.

To adjust the closed stop plate:

- (a) Loosen the hardware securing the closed stop plate. See Figure 20 on page 18.
- (b) The stop plate holes are slotted to allow room for adjustment. Position the operating handle in the stop plate, and turn the operating handle as far as it will go in the **Closed** position. (Counterclockwise is standard on switches using the rotating operating mechanism.) The handle should be tight against the edge of the stop plate. See Figure 21 on page 18. Mark the position of the closed stop plate. See Figure 22 (Left).
- (c) Lift the handle out of the way and rotate the stop plate an additional 15 degrees counterclockwise from the mark. Make sure the open stop plate lines up with the mark made in Step 23. Tighten the stop plate hardware to 40 ft-lbs. See Figure 22 (Right).
- (d) Push the handle into the closed stop position. It should take significant force to secure the handle into the closed stop. The handle will be firmly pressed against the left side of the closed stop plate. This pressure will hold the torque in the pipe, creating the desired windup. Move the handle into the open position to verify it fits into the open stop plate. See Figure 23.

Step 25

Recheck to be sure all clamp bolts and piercing set screws have been torqued to final tightness.



Figure 22. Mark the stop plate, then loosen the hardware and rotate the closed stop plate backward approximately 15 degrees.

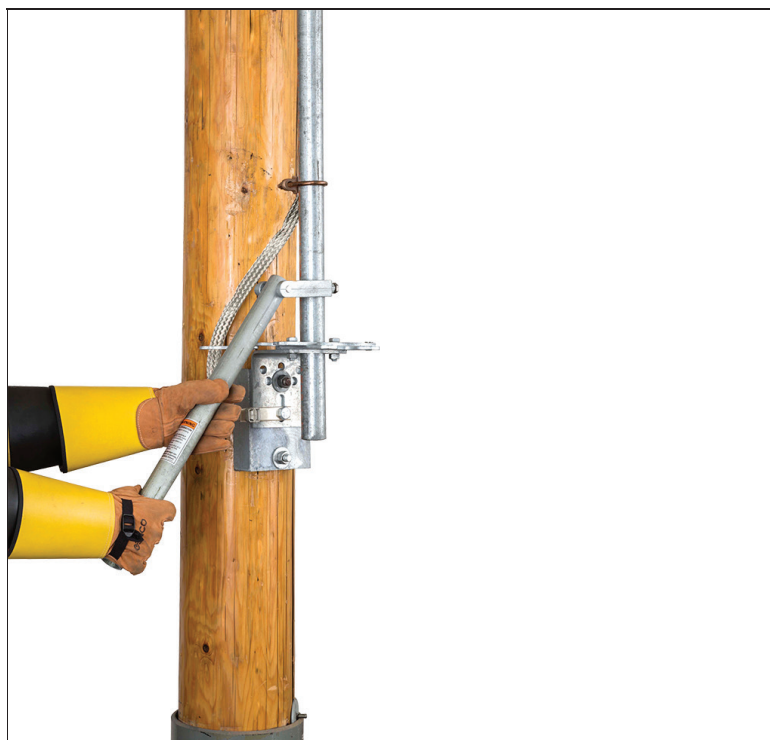


Figure 23. Verify there is enough wind-up in the vertical pipe.

Checking the Operation

Step 26

NOTICE

Open and close the switch slowly **ONLY** when checking the operation or making adjustments to the de-energized switch.

When opening or closing an energized switch, swing the operating handle vigorously through its full travel without hesitation.

Arcing and damage to the switch will occur if the energized switch is operated slowly or left in the partially open or closed position.

Open and close the switch slowly through its full travel. Check to be sure the following conditions exist:

- (a) With the operating handle as far as it will go in the closing direction, all main contacts of the interrupter switch are in the fully **Closed** position.
- (b) With the operating handle as far as it will go in the opening direction, the switch blades are 90 degrees from the **Closed** position. See Figure 24.
- (c) If adjustment is required, loosen the hinge-end bolts that fasten the blade assembly to its insulator, and move the switch blade until it is in the fully **Closed** position. Retighten the bolts making sure the interrupter switch remains in the fully **Closed** position.
- (d) If adjustment is required beyond that provided by movement of the switch-blade assembly, loosen the clamping bolts and piercing set screw that fasten the coupling to the interphase rod, and rotate the switch blade until it is in the fully **Closed** position. Retighten the clamping bolts and piercing set screw, making sure the interrupter switch remains in the fully **Closed** position.

CAUTION

Be sure to retighten the locknut on the stop-bolt and the clamp bolts on the outboard bearing crank arm after adjusting.



Figure 24. Switch blades are 90 degrees from the Closed position.

Step 27

Open and close the switch slowly several times, and check the operation of each pole. The following conditions must be met:

- (a) As the blade moves in the closing direction, clearance between the blade-opening cam and the interrupter-opening lever must be within the limit shown in Figure 25.
- (b) In the fully **Closed** position, clearance between the blade-closing cam and the interrupter-closing lever must be within the limit shown in Figure 26. Also, the clearances between the blade-shunt contact and the interrupter—measured to the interrupter housing as well as to the interrupter skirts—must be as shown in Figure 26.
- (c) As the blade moves in the opening direction, the blade-shunt contact must firmly engage either or both the interrupter-contact rivets before the blade disengages from the jaw contact. (The shunt contact may be bent as required to conform to these conditions.)
- (d) The interrupter must lie in a plane parallel to the sweep of the blades, and the blades must pass over the interrupter with approximately equal clearance on both sides. See Figure 27.
- (e) If adjustment is required, loosen the bolts that fasten the interrupter to the jaw-contact assembly, and shift the interrupter within the confines of the mounting holes to achieve the necessary alignment. Retighten the nuts.

If any of the conditions described in this step cannot be achieved, contact the nearest S&C Sales Office because it is likely damage was sustained during shipping.

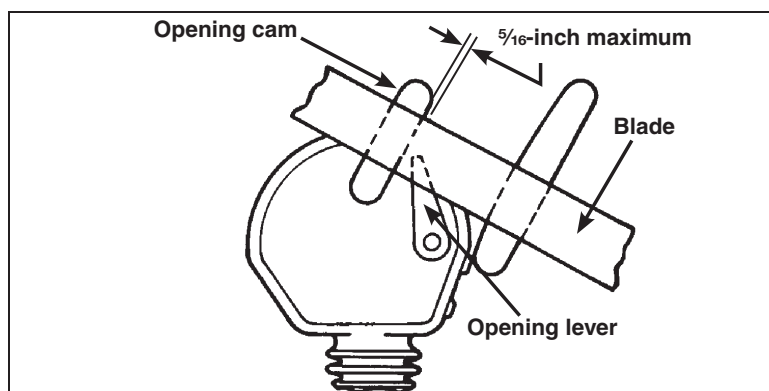


Figure 25. Blade assembly moving in the closing direction.

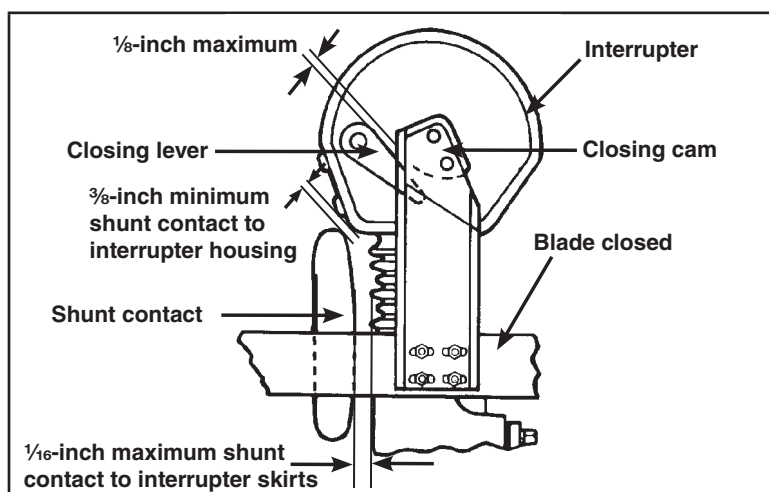


Figure 26. Blade assembly in the fully Closed position.

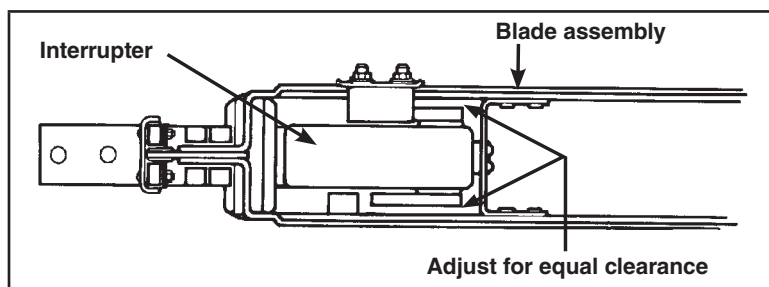


Figure 27. Interrupter lies parallel to the sweep of the blades.

Connecting the High Voltage Conductors

When high-voltage conductors are to be connected using aluminum-alloy body connectors♦, follow these procedures:

- (a) Thoroughly wire-brush the current-transfer surfaces of each connector and immediately apply a liberal coating of Penetrox® A (available from Burndy Corporation) or another suitable aluminum-connector compound to the brushed surfaces.
- (b) Wire-brush each terminal pad of the interrupter switch and apply a coating of Penetrox A. Afterward, bolt the connectors to the terminal pads.
- (c) Prepare the conductors using the established procedures, and clamp them in their respective connectors.

♦ These mass-anode type connectors, such as the catalog number 5300 series offered by S&C, have been designated by the connector manufacturer as being suitable for direct attachment to copper-bearing alloy terminal pads.

Opening and Closing the Switch

⚠ DANGER

The interrupters and terminal pads of the Alduti-Rupter Switch may be energized from either side of the switch with the interrupters in any position. Before inspecting, servicing, or repairing this switch or working on the conductors on either side of the switch, test for voltage using proper high-voltage test equipment. Afterward, install suitable grounding equipment at all six terminals.

Failure to observe these precautions may result in serious injury or death.

NOTICE

This interrupter switch is not intended for breaking fault currents.

Step 28

To operate the Alduti-Rupter Switch:

- (a) Remove the padlock(s) from the hasps on the operating-handle assembly. See Figure 28.
- (b) If the operating handle assembly is furnished with a key interlock, disengage the interlock bolt. See Figure 29.

⚠ CAUTION

Swing the operating handle vigorously through its full travel without hesitation. Arcing and damage to the switch will occur if the energized switch is operated slowly or left in the partially open or closed position.

- (a) Swing the handle rapidly to the fully open or fully closed position. Check that all three poles are fully open or fully closed. See Figure 30.
- (b) Replace the padlock(s). Engage the key interlock, if applicable.

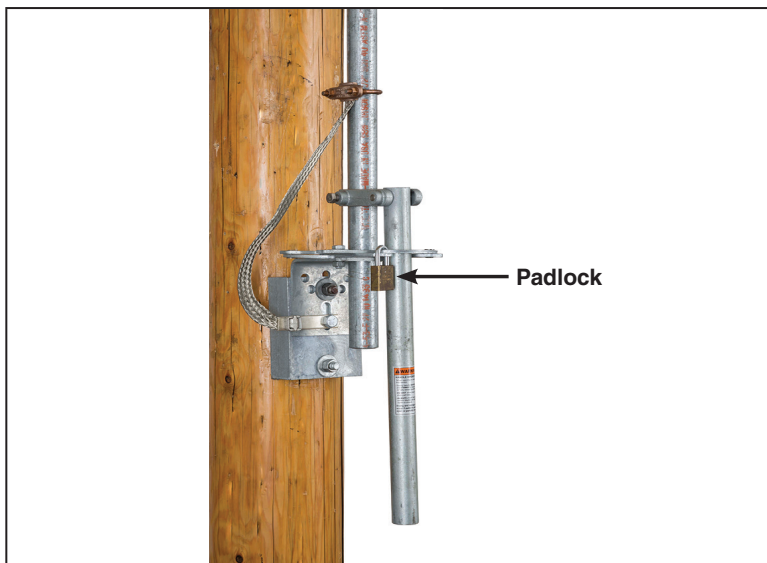


Figure 28. Remove the padlock(s).

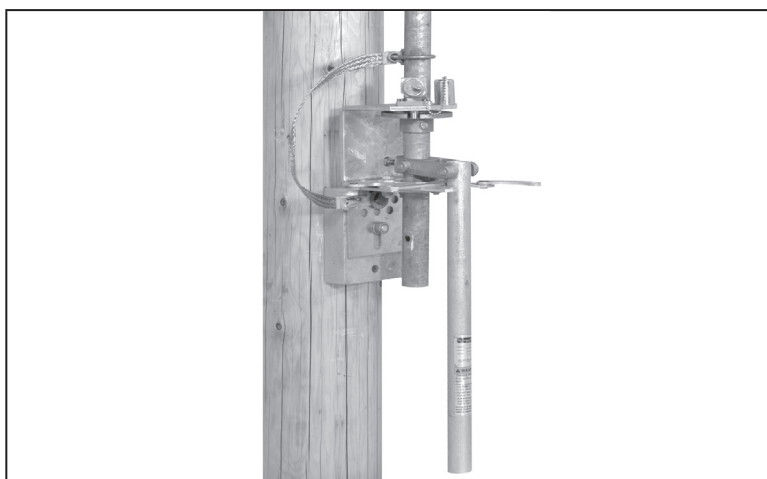


Figure 29. Disengage the key interlock bolt.

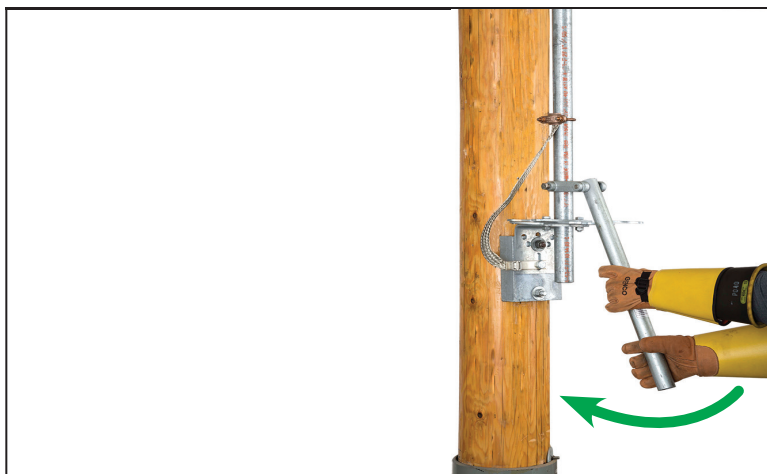


Figure 30. Swing the operating handle through its full travel.

